	Application No.	Applicant(s)
Notice of Allowability	10/647,070	ADHIKARI, PRASANNA
	Examiner	Art Unit
	Oanh Duong	2155

*-- The **MAILING DATE** of this communication appears on the cover sheet with the correspondence address--*

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *12/08/2006*.

2. ☒ The allowed claim(s) is/are *1-3,5 and 7-17*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None of the:

       1. ☐ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

       3. ☐ Copies of the certified copies of the priority documents have been received,in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☒ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

       1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *20070122* .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

INTERVIEW SUMMARY

1.   A proposed amendment is submitted for applicant's consideration.

Examiner suggested applicant to amend claims 1-3, 5, 7-11, and 15-17 as shown

in Examiner's amendment below. Examiner also suggested applicant to cancel

claims 4, 6 and 18-24 in order to place the application in condition for allowance.

EXAMINER'S AMENDMENT

2.   An examiner's amendment to the record appears below. Should the

changes and/or additions be unacceptable to applicant, an amendment may be

filed as provided by 37 CFR 1.312. To ensure consideration of such an

amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone

interview with Jun-Young E. Jeon (Registration No. 43,693) on January 22, 2007.

The application has been amended as follows:

The claims of the invention are amended as follows:

1.   (Currently Amended) A method for <u>automatically</u> detecting <u>and self-

recovering from</u> a network isolation <u>condition</u> in a network comprising a plurality

of network nodes and a group of one or more root nodes, the method comprising:

configuring the group of root nodes to periodically generate beacon

packets;

configuring each of the plurality of network nodes to have finite states

consisting of[[:]] an idle state,[[;]] a discovery state[[;]], a reconfiguration state[[;]],

a search state[[;]], a wait state[[;]], and a registration state;

receiving, during said idle state, at said each of the plurality of network

nodes a first beacon packet originating from the group of root nodes and

received through an adjacent one node of the root or said each of the plurality of

network nodes, wherein said adjacent node of said each of the plurality of

network nodes is designated as a parent node of said each of the plurality of

network nodes;

storing at said each of the plurality of network nodes an aging indicator for

the received first beacon packet after an a first aging interval; [[and]]

resetting said aging indicator at said each of the plurality of network nodes

when a second beacon packet is received through said adjacent node of said

each of the plurality of network nodes and source address of said second beacon

packet matches source address of said first beacon packet;

if the said aging indicator is not reset by [[a]] said second beacon packet

received through said the adjacent node one of the root or said each of the

plurality of network nodes before after a second aging interval greater than the

first aging interval, then:

indicating [[a]] said network isolation condition during said idle

state; [[and]]

listening, by said each of the plurality of network nodes during said

search state, for a new beacon packet originating from the group of root nodes,

and said new beacon packet is received through a different adjacent node ~~one~~ of

~~the root or~~ said each of the plurality of network nodes;

entering, by said each of the plurality of network nodes, said wait

state in response to receiving said new beacon packet;

verifying, during said discovery state, said different adjacent node of said each of

the plurality of network nodes is not a descendant node of said each of the

plurality of network nodes;

in response to said verifying, transmitting, during said registration

state, a registration request to said different adjacent node to establish said

different adjacent node as a new parent node of said each of the plurality of

network nodes when said different adjacent node of said each of the plurality of

network nodes is not the descendant node of said each of the plurality of network

nodes;

receiving an approval, in reconfiguration state, from said different

adjacent node of said each of the plurality of network nodes in response to said

registration request;

deleting a parent status of said adjacent node of said each of the

plurality of network nodes; and

storing an indication of said different adjacent node as said new

parent node at said each of the plurality of network nodes.

2.   (Currently Amended) The method of claim 1, wherein each of the beacon packets comprises a universal destination address for validating the beacon packets.

3.   (Currently Amended) The method of claim 1, said receiving further comprising:

receiving the new beacon packet from another adjacent <u>node</u> ~~one~~ of ~~the root or~~ <u>the each of the plurality of</u> network nodes other than the ~~adjacent one of the root or network nodes~~ <u>parent node</u>; and

dropping the new beacon packet received from said another adjacent ~~one~~ <u>node</u> of the ~~root or~~ <u>each of the plurality of</u> network nodes when the network isolation condition is not indicated.

4.   (Canceled)

5.   (Currently Amended) The method of claim <u>1</u> [[4]], said transmitting further comprising:

transmitting a discovery message upstream; and

receiving a reply to the discovery message from said another adjacent ~~one~~ <u>node</u> of the ~~root or~~ <u>each of the plurality of</u> network nodes on an upstream port.

6.   (Canceled)

7.   (Currently Amended) The method of claim 1, wherein the second <u>aging</u> interval is at least twice the <u>first</u> aging interval.

8.   (Currently Amended) The method of claim 1, further comprising:

continuously receiving a plurality of beacon packets that are individually

transmitted by at least one of the root nodes at an interval that is shorter than the

first aging interval.

9.   (Currently Amended) The method of claim 1, further comprising:

transmitting the first beacon packet received from the ~~adjacent one of the~~

~~root or network nodes~~ parent node to all neighboring network nodes.

10.   (Currently Amended) The method of claim 1, further comprising:

receiving a network reconfiguration command; and

selecting [[a]] the new parent node that is not [[a]] the descendant node

within the network in response to the network reconfiguration command.

11.   (Currently Amended) The method of claim 10, further comprising:

operating in a discovery state after receiving the network reconfiguration

command until an ~~ancestor/descendant~~ ancestor-descendant relationship is

identified.

15.   (Currently Amended) The method of claim 1, further comprising:

storing [[an]] the age indicator for a plurality of stored data packets other

than the first beacon packet at the first aging interval.

16.   (Currently Amended) A computer readable storage medium

encoded with processing instructions for implementing a method for

automatically detecting and self-recovering from a network isolation condition in a

network comprising a plurality of network nodes and a group of one or more root

nodes, the method comprising:

configuring the group of root nodes to periodically generate beacon packets;

configuring each of the plurality of network nodes to have finite states consisting of[[:]] an idle state,[[;]] a discovery state[[;]], a reconfiguration state[[;]], a search state[[;]], a wait state[[;]], and a registration state;

receiving, during said idle state, at said each of the plurality of network nodes a first beacon packet originating from the group of root nodes and received through an adjacent one node of the root or said each of the plurality of network nodes, wherein said adjacent node of said each of the plurality of network nodes is designated as a parent node of said each of the plurality of network nodes;

storing at said each of the plurality of network nodes an aging indicator for the received first beacon packet after an a first aging interval; [[and]]

resetting said aging indicator at said each of the plurality of network nodes when a second beacon packet is received through said adjacent node of said each of the plurality of network nodes and source address of said second beacon packet matches source address of said first beacon packet;

if the said aging indicator is not reset by [[a]] said second beacon packet received through said the adjacent node one of the root or said each of the plurality of network nodes before after a second aging interval greater than the first aging interval, then:

indicating [[a]] said network isolation condition during said idle state; [[and]]

listening, by said each of the plurality of network nodes during said

search state, for a new beacon packet originating from the group of root nodes,

and said new beacon packet is received through a different adjacent node ~~one~~ of

~~the root or~~ said each of the plurality of network nodes;

entering, by said each of the plurality of network nodes, said wait

state in response to receiving said new beacon packet;

verifying, during said discovery state, said different adjacent node

of said each of the plurality of network nodes is not a descendant node of said

each of the plurality of network nodes;

in response to said verifying, transmitting, during said registration

state, a registration request to said different adjacent node to establish said

different adjacent node as a new parent node of said each of the plurality of

network nodes when said different adjacent node of said each of the plurality of

network nodes is not the descendant node of said each of the plurality of network

nodes;

receiving an approval, in reconfiguration state, from said different

adjacent node of said each of the plurality of network nodes in response to said

registration request;

deleting a parent status of said adjacent node of said each of the

plurality of network nodes; and

storing an indication of said different adjacent node as said new

parent node at said each of the plurality of network nodes.

17.　　(Currently Amended) An apparatus for <u>automatically</u> detecting <u>and</u>

<u>self-recovering from</u> a network isolation <u>condition</u> in a network comprising a

plurality of network nodes and a group of one or more root nodes, the apparatus

comprising:

means for configuring the group of root nodes to periodically generate

beacon packets;

means for configuring <u>each of</u> the plurality of network nodes to have finite

states consisting of[[:]] an idle state,[[;]] a discovery state[[;]], a reconfiguration

state[[;]], a search state[[;]], a wait state[[;]], and a registration state;

means for receiving, <u>during said idle state,</u> at <u>said each of</u> the plurality of

network nodes a <u>first</u> beacon packet originating from the group of root nodes ~~and~~

~~received~~ through an adjacent ~~one~~ <u>node</u> of ~~the root or~~ <u>said each of the plurality of</u>

<u>network nodes, wherein said adjacent node of said each of the plurality of</u>

<u>network nodes is designated as a parent node of said each of the plurality of</u>

<u>network nodes</u>;

means for storing at <u>said</u> each of the plurality of network nodes an aging

indicator for the ~~received~~ <u>first</u> beacon packet after ~~an~~ <u>a first</u> aging interval; [[and]]

<u>means for resetting said aging indicator at said each of the plurality of</u>

<u>network nodes when a second beacon packet is received through said adjacent</u>

<u>node of said each of the plurality of network nodes and source address of said</u>

<u>second beacon packet matches source address of said first beacon packet;</u>

means for, if ~~the~~ <u>said</u> aging indicator is not reset by [[a]] <u>said</u> second

beacon packet received through <u>said</u> ~~the~~ adjacent <u>node</u> ~~one~~ of ~~the root or~~ said

each of the plurality of network nodes ~~before~~ after a second aging interval greater

than the first aging interval, then:

indicating [[a]] said network isolation condition during said idle

state; [[and]]

listening, by said each of the plurality of network nodes during said

search state, for a new beacon packet originating from the group of root nodes,

and said new beacon packet is received through a different adjacent node ~~one~~ of

~~the root or~~ said each of the plurality of network nodes;

entering, by said each of the plurality of network nodes, said wait

state in response to receiving said new beacon packet;

verifying, during said discovery state, said different adjacent node

of said each of the plurality of network nodes is not a descendant node of said

each of the plurality of network nodes;

in response to said verifying, transmitting, during said registration

state, a registration request to said different adjacent node to establish said

different adjacent node as a new parent node of said each of the plurality of

network nodes when said different adjacent node of said each of the plurality of

network nodes is not the descendant node of said each of the plurality of network

nodes;

receiving an approval, in reconfiguration state, from said different

adjacent node of said each of the plurality of network nodes in response to said

registration request;

deleting a parent status of said adjacent node of said each of the

plurality of network nodes; and

storing an indication of said different adjacent node as said new

parent node at said each of the plurality of network nodes.

Claims 18-24 (Canceled).

REASONS FOR ALLOWANCE

3.   Claims 1-3, 5, and 7-17 are allowable over the prior art of record.

4.   This communication warrants no examiner's reason for allowance, as

applicant's replies make evident the reasons for allowance, satisfying the "record

as a whole" as required by rule 37 CFR 1.104(e). In this case, the substance of

applicant's remarks in the Amendment filed on September 8, 2006 with respect

to the amended claim limitations and further amended claim limitations in the

Examiner's Amendment (see attached) point out the reasons claims are

patentable over the prior art of record. Thus, reason for allowance is in all

probability evident from the record and no statement for examiner's reason for

allowance is necessary (see M.P.E.P 1302.14)

5.   Any comments considered necessary by applicant must be submitted no

later than the payment of the issue fee and, to avoid processing delays, should

preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Oanh Duong whose telephone number is (571) 272-3983. The examiner can normally be reached on Monday- Friday, 9:30PM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Oanh Duong
January 22, 2007